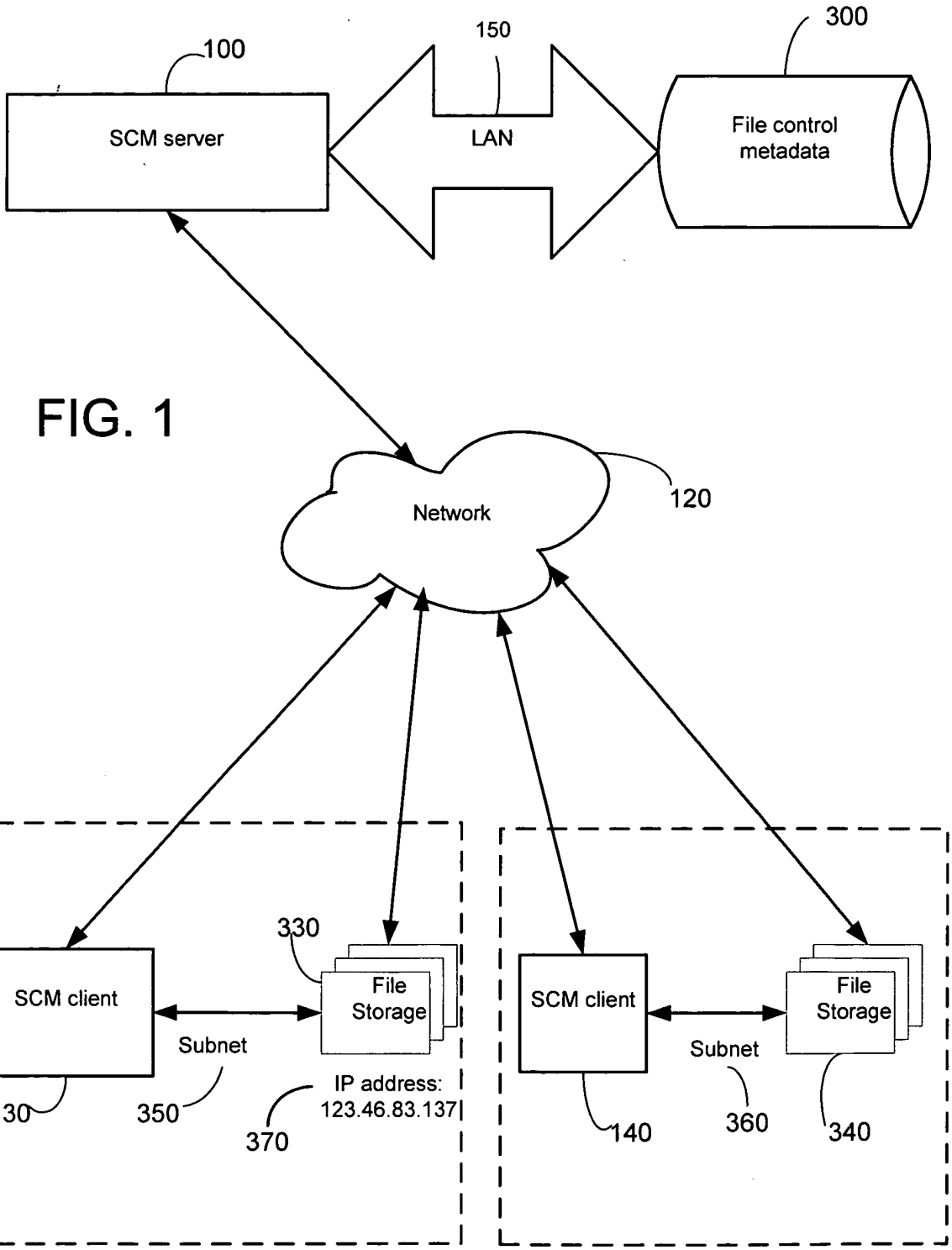

100
150
300
SCM server
LAN
File control metadata
Network
120
330
SCM client
File Storage
Subnet
IP address:
123.46.83.137
130
350
370
SCM client
File Storage
Subnet
140
360
340

FIG. 1

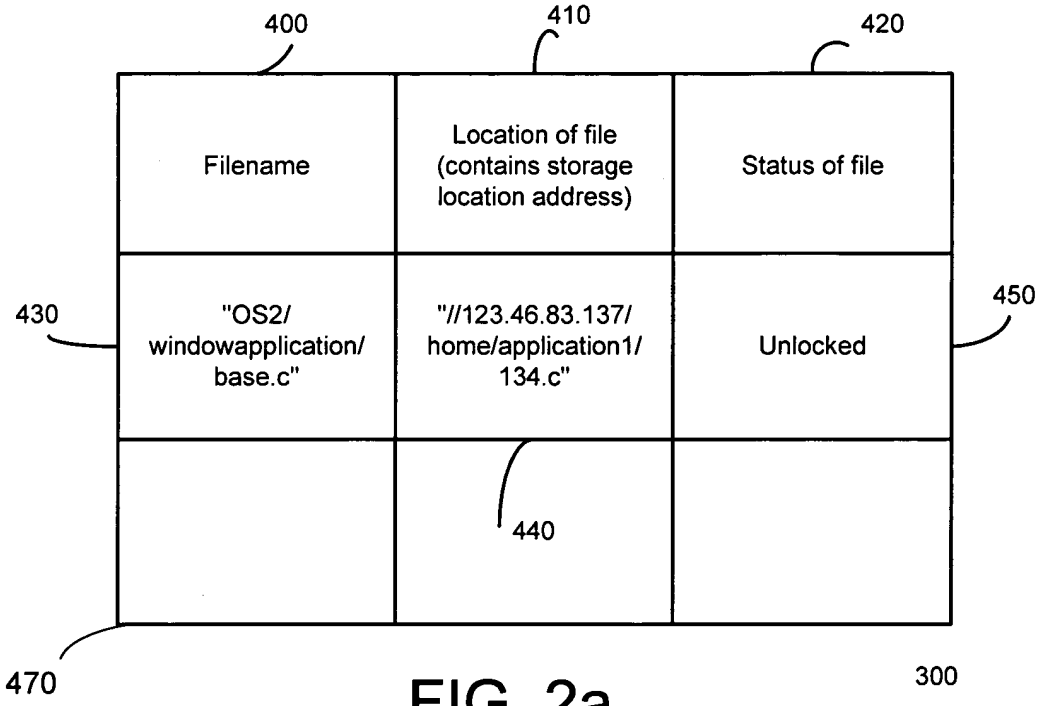

400
410
420
Filename
Location of file (contains storage location address)
Status of file
430
"OS2/ windowapplication/ base.c"
"//123.46.83.137/ home/application1/ 134.c"
Unlocked
450
440
470
300

FIG. 2a

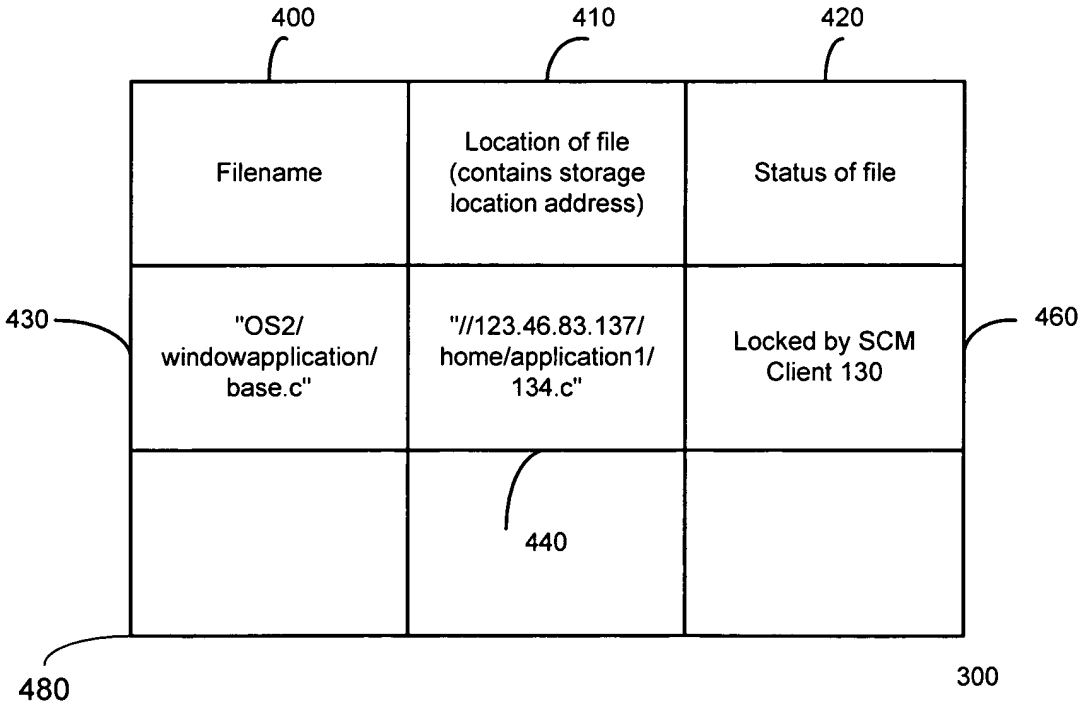
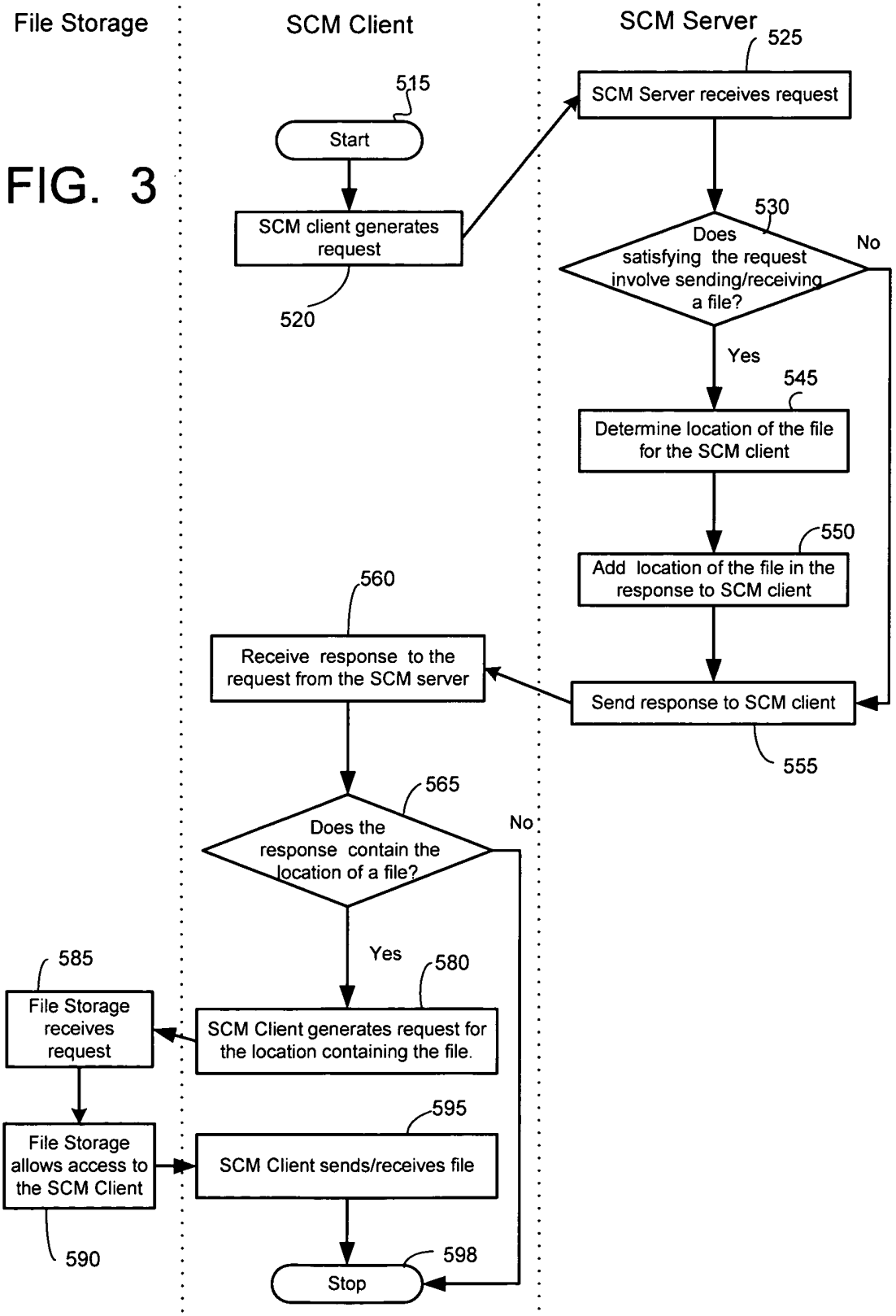

400
410
420
Filename
Location of file (contains storage location address)
Status of file
430
"OS2/ windowapplication/ base.c"
"//123.46.83.137/ home/application1/ 134.c"
Locked by SCM Client 130
460
440
480
300

FIG. 2b

FIG. 3


File Storage
SCM Client
SCM Server
525
515
Start
SCM Server receives request
SCM client generates request
520
530
Does satisfying the request involve sending/receiving a file?
No
Yes
545
Determine location of the file for the SCM client
550
Add location of the file in the response to SCM client
560
Receive response to the request from the SCM server
Send response to SCM client
555
565
Does the response contain the location of a file?
No
Yes
585
580
File Storage receives request
SCM Client generates request for the location containing the file.
595
File Storage allows access to the SCM Client
SCM Client sends/receives file
590
598
Stop

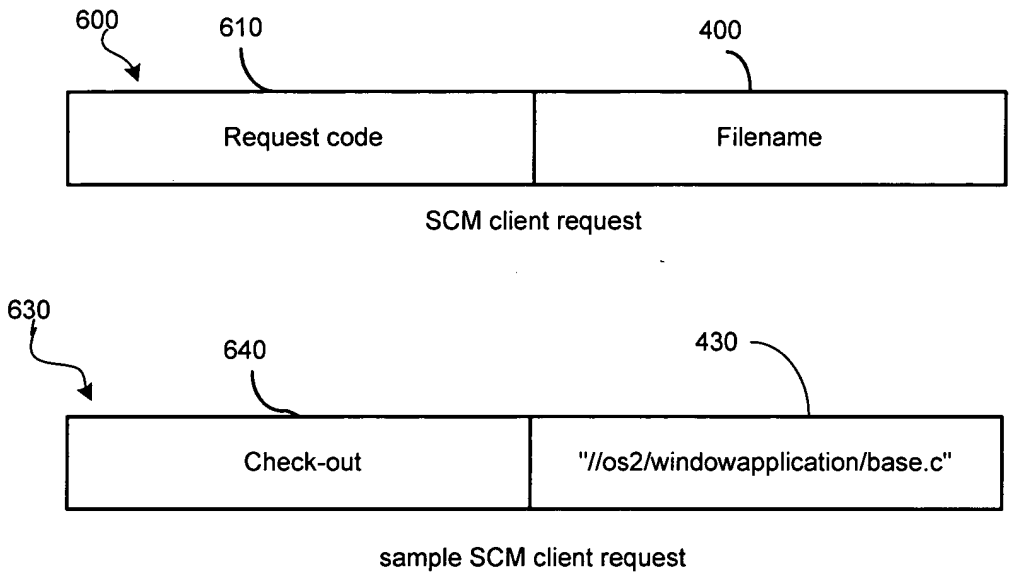

600
610
400
Request code
Filename
SCM client request
630
640
430
Check-out
"//os2/windowapplication/base.c"
sample SCM client request

FIG. 4a

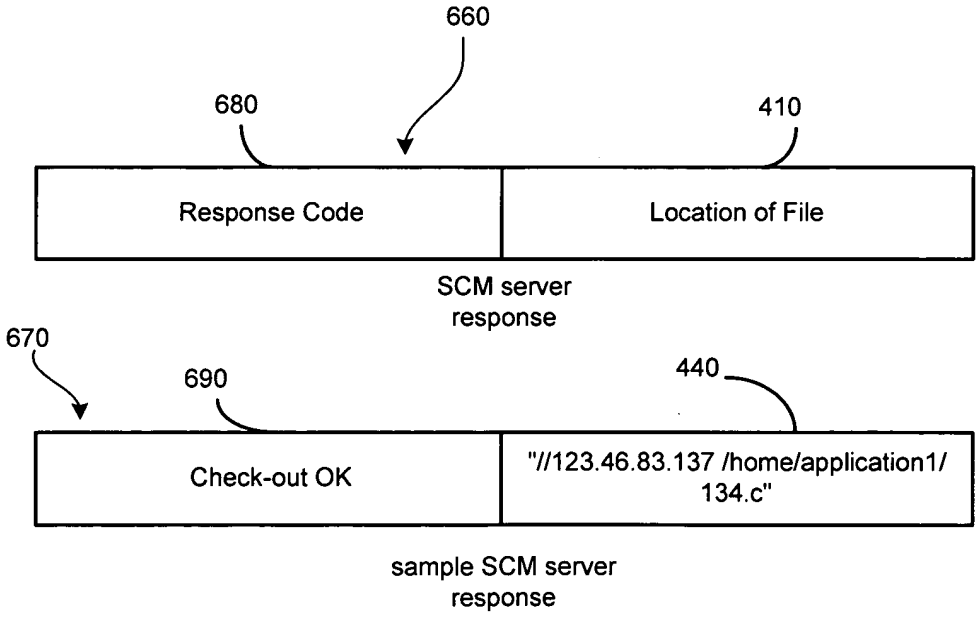

660
680
410
Response Code
Location of File
SCM server response
670
690
440
Check-out OK
"//123.46.83.137 /home/application1/ 134.c"
sample SCM server response

FIG. 4b

FIG. 5

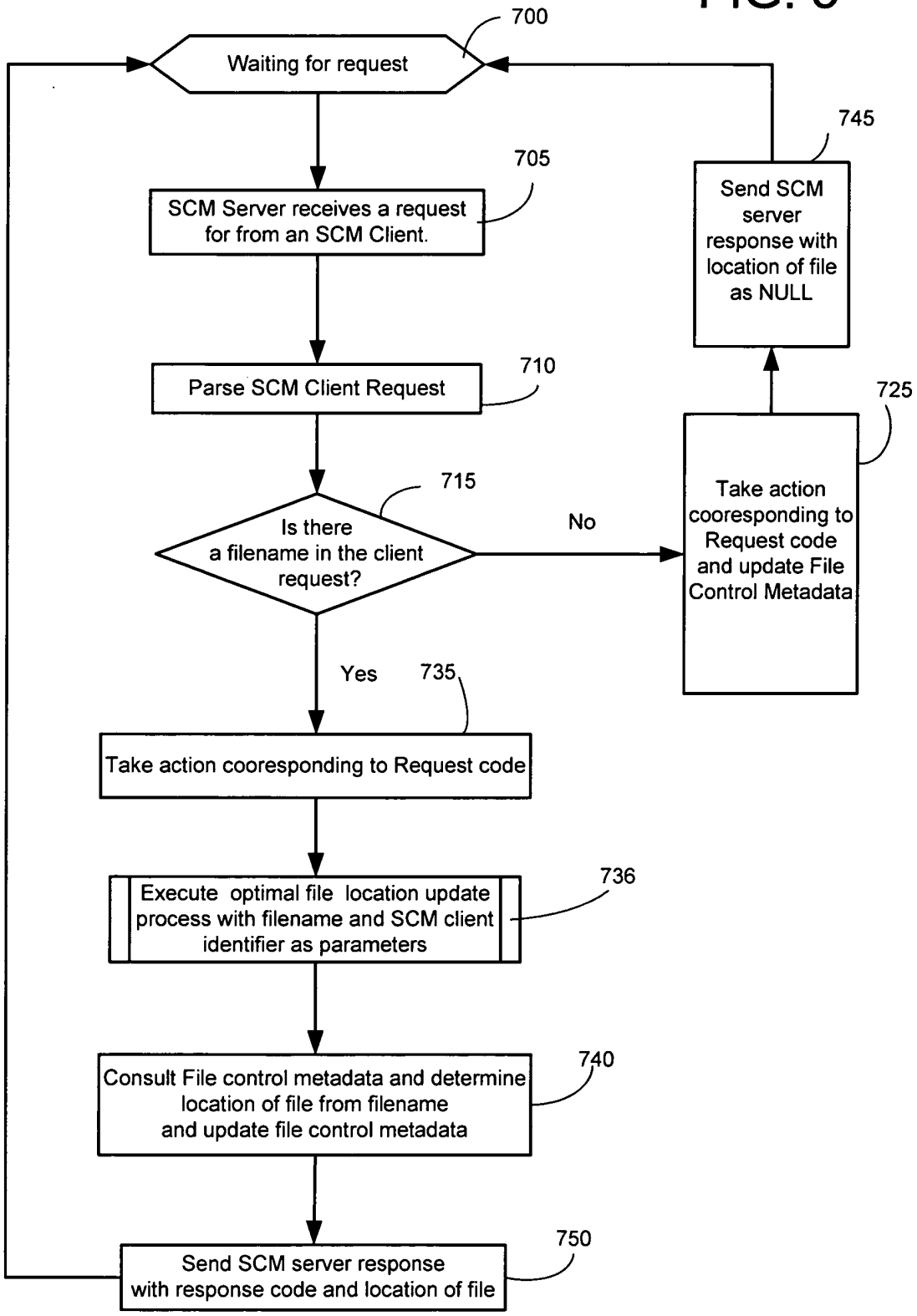
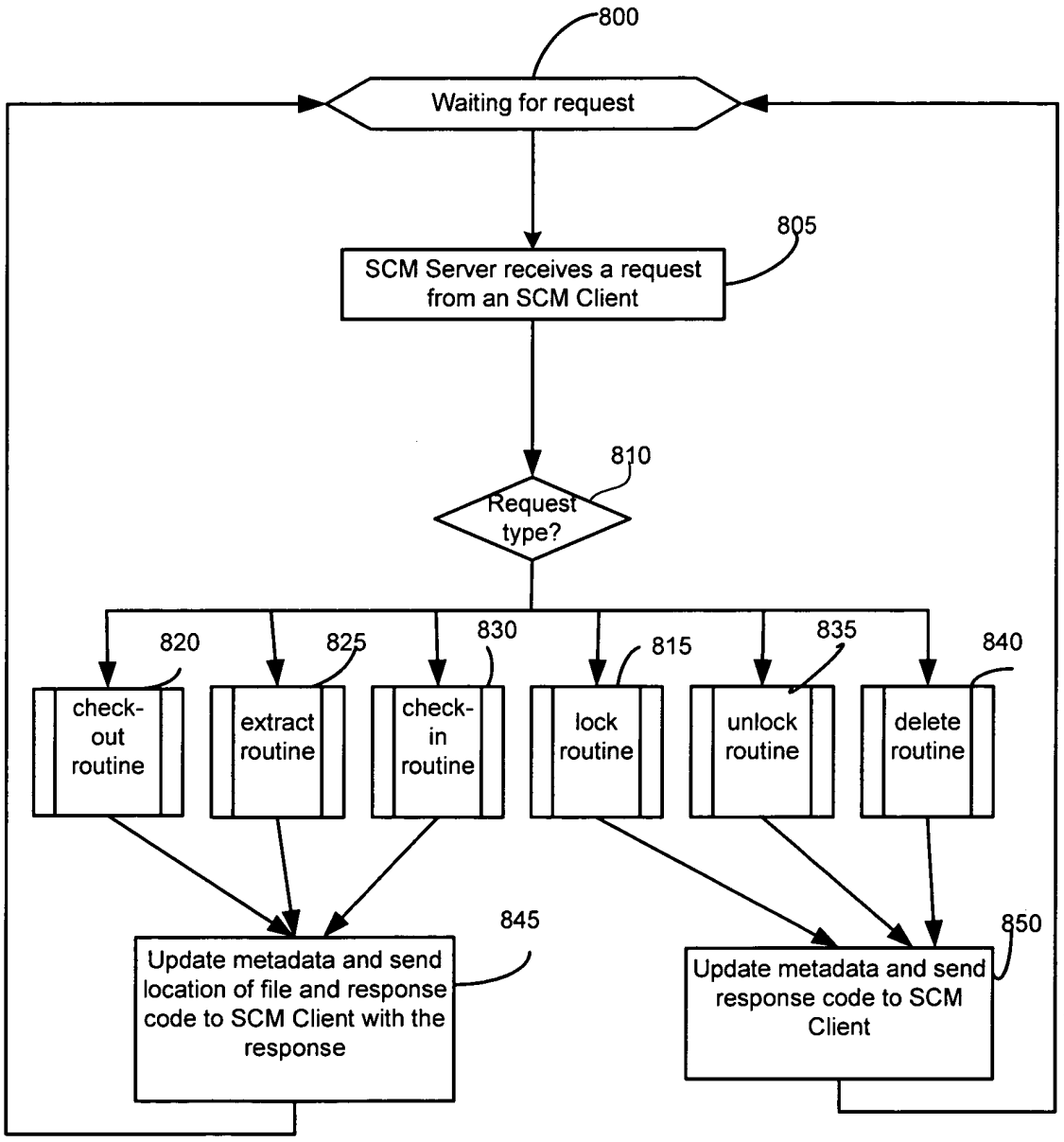

700
Waiting for request
705
SCM Server receives a request for from an SCM Client.
710
Parse SCM Client Request
715
Is there a filename in the client request?
No
745
Send SCM server response with location of file as NULL
725
Take action cooresponding to Request code and update File Control Metadata
Yes
735
Take action cooresponding to Request code
736
Execute optimal file location update process with filename and SCM client identifier as parameters
740
Consult File control metadata and determine location of file from filename and update file control metadata
750
Send SCM server response with response code and location of file

FIG. 6


800
Waiting for request
805
SCM Server receives a request from an SCM Client
810
Request type?
820
825
830
815
835
840
check-out routine
extract routine
check-in routine
lock routine
unlock routine
delete routine
845
Update metadata and send location of file and response code to SCM Client with the response
850
Update metadata and send response code to SCM Client

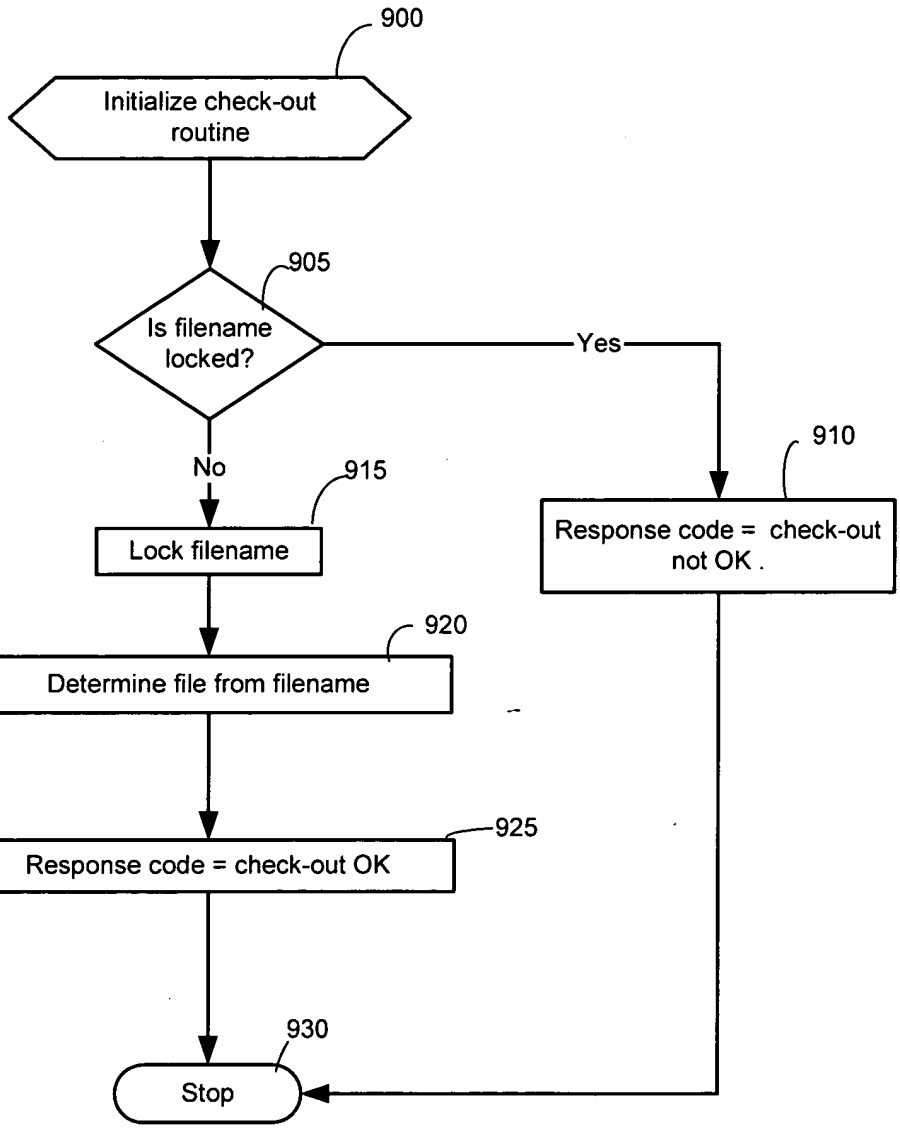

900
Initialize check-out routine
905
Is filename locked?
Yes
No
910
Response code = check-out not OK .
915
Lock filename
920
Determine file from filename
925
Response code = check-out OK
930
Stop

FIG. 7

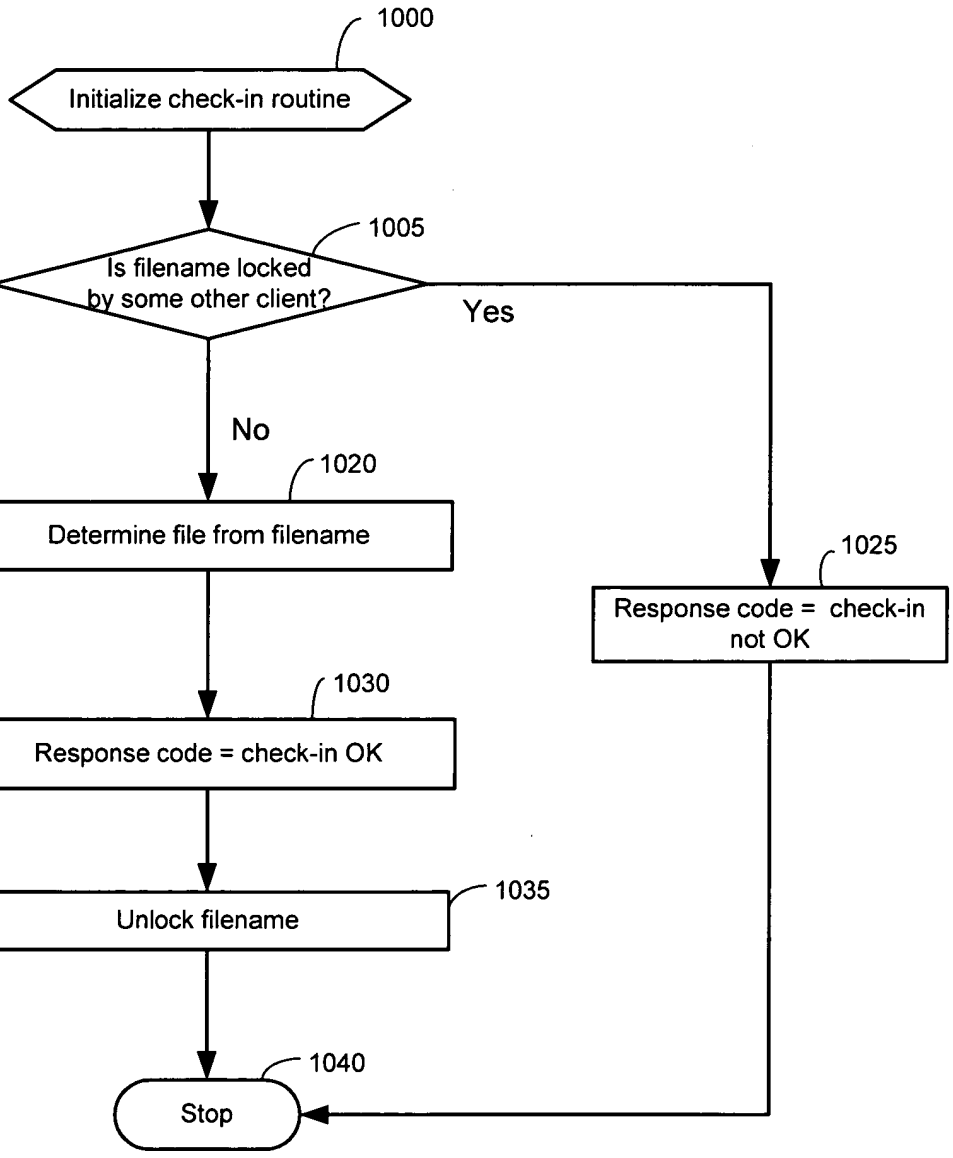

1000
Initialize check-in routine
1005
Is filename locked by some other client?
Yes
No
1020
Determine file from filename
1025
Response code = check-in not OK
1030
Response code = check-in OK
1035
Unlock filename
1040
Stop

FIG. 8

FIG. 9

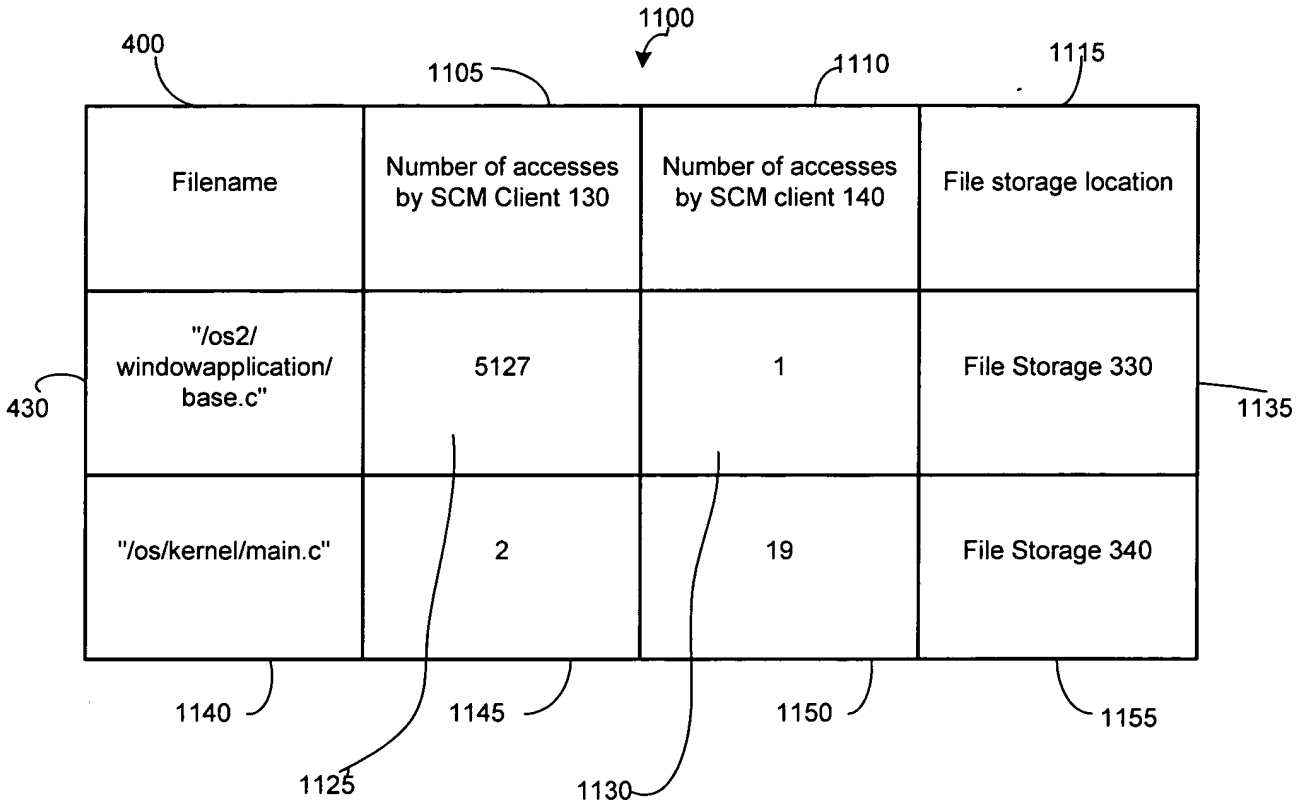
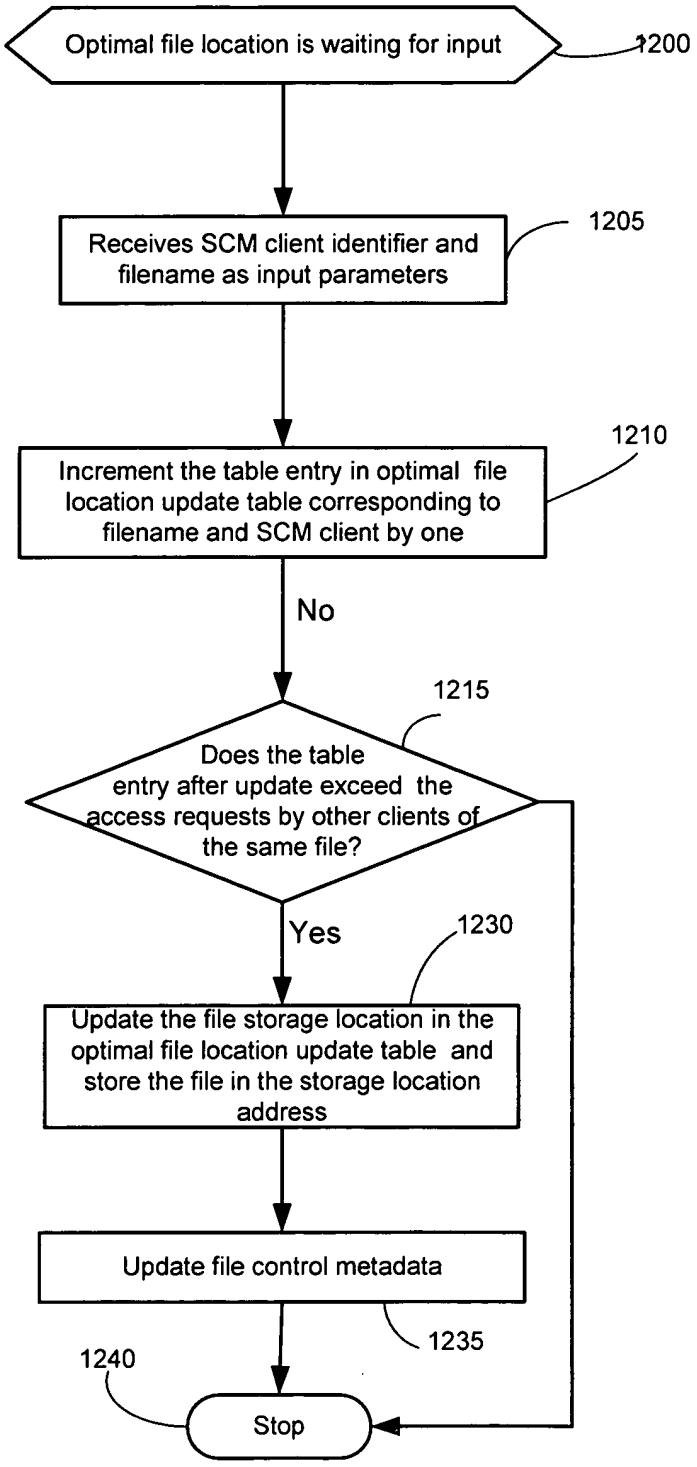

1100
400
1105
1110
1115
Filename
Number of accesses by SCM Client 130
Number of accesses by SCM client 140
File storage location
"/os2/ windowapplication/ base.c"
5127
1
File Storage 330
430
1135
"/os/kernel/main.c"
2
19
File Storage 340
1140
1145
1150
1155
1125
1130

FIG. 10


Optimal file location is waiting for input
1200
Receives SCM client identifier and filename as input parameters
1205
Increment the table entry in optimal file location update table corresponding to filename and SCM client by one
1210
No
1215
Does the table entry after update exceed the access requests by other clients of the same file?
Yes
1230
Update the file storage location in the optimal file location update table and store the file in the storage location address
Update file control metadata
1235
1240
Stop